

RECEIVED  
CENTRAL FAX CENTER  
MAR 29 2007

IN THE SPECIFICATION:

Please amend the paragraph beginning on page 6, line 10 as follows.

Figs. 4a-4i illustrate steps in a 2N-shot process, with N=2. Recently, a new method, the 2N-shot method, was developed to increase process throughput. The 2N-shot method uses beam-shaping mask designs and/or scanning schemes for the substrate. In the 2N-shot method, an amorphous silicon (a-Si) film is exposed to a series of 2-shot laser irradiation steps with 'N' equal to the number of steps. For each step, the substrate (or beamlets) is rotated 90° with respect to the direction of lateral growth of the previous step. The sequence of above-mentioned steps are shown in Fig. 4, in alphabetical order, as follows. In Fig. 4a the process begins with an amorphous substrate. Fig. 4b depicts 4 regions of Si oriented in a top to bottom direction that are melted in a first step. In Fig. 4c the Si has solidified and dark lines representing grain boundaries extend along the edges of the crystallized regions. In Fig. 4d, 5 regions adjacent the previously crystallized regions are melted in a second step of irradiation (N = 2 in this example). In Fig. 4e, the Si has solidified, and grain boundaries are formed along the dotted lines. In Fig. 4f the substrate is exposed to a first step of irradiation in an orthogonal direction (left to right). In Fig. 4g the Si has solidified and parallel grain boundaries are formed along the edges of the crystallized region, running from left to right. Note: the dark lines running top to bottom represent grain boundaries formed in Steps 4a-4e. In Fig. 4h regions adjacent the regions previously crystallized regions in Step 4g are melted in a second

step of irradiation in the orthogonal direction. In Fig. 4i the Si has solidified and the final result is square grid pattern of grain boundaries, which can be seen in greater detail in Fig. 6.

The 2N-shot method can provide very high throughput, on the order of less than 5 minutes for a glass substrate of 620x750mm<sup>2</sup>. The resulting poly-Si material (Fig. 4i) has square grains within a square grid of grain boundaries. The 2N-shot method generally sweeps defects in the silicon material, however, within the square grains, a certain percentage of defects remain. In addition, the grid boundaries also cause some deterioration of the TFT characteristics. The grid boundaries are ridged, causing the poly-Si surface to be rough. This roughness requires the use of relatively thick gate insulating layers, for example, about 1000 angstroms (A), in TFT applications. Also, it is difficult to vary the location of the grain boundary grid. For each step in the 2N-shot process, grain boundary locations are determined by the fixed configuration of the apertures in the mask. That is, an individual aperture, corresponding to an individual grain boundary, cannot be moved without moving all the apertures (i.e., moving the mask). There may be some flexibility in the alignment of the mask for the first 2N-shot iteration in a sequence, however, there is likely a preferred alignment. To maximize use of a substrate, subsequent iterations will require aligning the mask with the boundaries from previous iterations. That is, there is little flexibility in mask alignments for subsequent iterations.